

WHAT IS CLAIMED IS:

1. A medical imaging system comprising:
 - an image sensor receiving imaging signals from a region of interest;
 - a memory coupled to the image sensor, the memory storing image data derived from the imaging signals, where the image data comprise:
 - first image data for a first sub-region of the region of interest acquired during a first occurrence of a physiologic cycle; and
 - second image data for a second sub-region of the region of interest acquired during a second occurrence of the physiologic cycle; and
 - a processor coupled to the memory for initiating display of the first image data while the second image data is being acquired, and for initiating display of the first image data joined with the second image data after the second image data is acquired.
2. The medical imaging system of claim 1, where the first image data is supplemented with third image data for the first sub-region of the region of interest acquired during a third occurrence of the physiologic cycle.
3. The medical imaging system of claim 2, where the processor initiates display of the first image data joined with the second image data after the second image data is acquired and while the third image data is being acquired, and further initiates display of the third image data joined with the second image data after the third image data is acquired.
4. The medical imaging system of claim 3, where the second image data is supplemented with fourth image data for the second sub-region of the region of interest acquired during a fourth occurrence of the physiologic cycle.
5. The medical imaging system of claim 4, where the processor initiates display of the third image data joined with the second image data after the third image data is acquired and while the fourth image data is being acquired, and further initiates display of the third image data joined with the fourth image data after the fourth image data is acquired.
6. The medical imaging system of claim 1, where the image sensor is an ultrasound transducer array.
7. The medical imaging system of claim 1, where the sub-regions are sub-volumes of the region of interest.

8. The medical imaging system of claim 1, where the image data comprises ultrasound image lines for the sub-regions.

9. The medical imaging system of claim 1, where the physiologic cycle is a heart cycle, and where the region of interest includes at least part of the heart.

10. The medical imaging system of claim 1, where the first and second imaging data are acquired based on an event trigger for the physiologic cycle.

11. The medical imaging system of claim 10, where the physiologic cycle is an ECG cycle and the event trigger is an ECG event.

12. The medical imaging system of claim 1, where the first image data is associated with a first time stamp, and is updated at least once with additional first image data associated with a second time stamp for the first sub-region during the first occurrence of the physiologic cycle.

13. The medical imaging system of claim 12, where the first and second sub-regions are non-contiguous.

14. The medical imaging system of claim 12, where the second image data is associated with a third time stamp, and is updated at least once with additional second image data associated with a fourth time stamp for the second sub-region during the second occurrence of the physiologic cycle.

15. The medical imaging system of claim 14, where the processor selects first and second image data for display based on closeness of the time stamps.

16. The medical imaging system of claim 1, where the processor repeatedly supplements the image data with additional image data and repeatedly joins and displays selected portions of the additional image data.

17. A medical imaging system comprising:

an image sensor receiving imaging signals from a region of interest;

a memory coupled to the image sensor, the memory storing image data derived from the imaging signals for a first and second sub-region, where the image data comprise:

a first series of first sub-region images, each acquired during a first occurrence of a physiologic cycle;

a second series of second sub-region images, each acquired during a second occurrence of the physiologic cycle;

a processor coupled to the memory for initiating display, while at least one of the second sub-region images is being acquired, of a selected first sub-region image joined with a selected second sub-region image in accordance with temporal proximity between the selected first sub-region image and the selected second sub-region image.

18. The medical imaging system of claim 17, where temporal proximity comprises time stamp proximity between the selected first sub-region image and the selected second sub-region image.

19. The medical imaging system of claim 17, where the first and second sub-regions are non-contiguous.

20. The medical imaging system of claim 17, where the first and second sub-region images are volume images.

21. The medical imaging system of claim 17, where the first series is supplemented with additional first sub-region images of the region of interest acquired during a third occurrence of the physiologic cycle.

22. The medical imaging system of claim 17, where the second series is supplemented with additional second sub-region images of the region of interest acquired during a fourth occurrence of the physiologic cycle.

23. The medical imaging system of claim 17, where acquisition of the first and second sub-region images is based on an event trigger for the physiologic cycle.

24. The medical imaging system of claim 23, where the physiologic cycle is an ECG cycle and the event trigger is an ECG event.

The medical imaging system of claim 17, where the processor repeatedly supplements the image data with additional image data and repeatedly joins and displays selected portions of the additional image data.

26. A method for medical imaging, the method comprising the steps of:
receiving at an image sensor imaging signals from a region of interest;
storing in a memory image data derived from the imaging signals, including:
first image data for a first sub-region of the region of interest acquired during a first occurrence of a physiologic cycle; and
second image data for a second sub-region of the region of interest acquired during a second occurrence of the physiologic cycle;

initiating display of the first image data while the second image data is being acquired; and

initiating display of the first image data joined with the second image data after the second image data is acquired.

27. The method of claim 26, further comprising the step of supplementing the first image data with third image data for the first sub-region of the region of interest acquired during a third occurrence of the physiologic cycle.

28. The method of claim 27, where the second step of initiating comprises the step of initiating display of the first image data joined with the second image data after the second image data is acquired and while the third image data is being acquired, and further comprising the step of initiating display of the third image data joined with the second image data after the third image data is acquired.

29. The method of claim 26, where the step of receiving comprises the step of receiving at an ultrasound transducer array.

30. The method of claim 26, where the sub-regions are sub-volumes of the region of interest.

31. The method of claim 26, where the first and second imaging data are acquired based on an event trigger for the physiologic cycle.

32. The method of claim 27, where the physiologic cycle is an ECG cycle and the event trigger is an ECG event.

33. The method of claim 26, further comprising the step of repeatedly supplementing the image data with additional image data and repeatedly joining and displaying selected portions of the additional image data.